Preparing Michigan Students for Work and College Success

Michigan Merit Curriculum
High School Graduation Requirements

MICHIGAN STATE BOARD OF EDUCATION 1849

MICHIGAN Department of Education

Preparing Today's Students for Tomorrow's Demands

In today's highly mobile and global workplace, high school graduates will likely change jobs over 10 times between the ages of 18 to 38 and careers over 7 times during their life. To ensure every student in Michigan is prepared for college, technical training or the workplace in 2006 the state legislature enacted the Michigan Merit Curriculum (MMC) high school graduation requirements.

These requirements were designed to prepare students with the skills and knowledge needed to succeed in college or the workplace. In addition, the MMC provides educators for the first time, both a common set of required credits for graduation, and, a common understanding of what students should know and be able to do for credit.

As a result, a high school diploma in Michigan tells employers, career and technical schools and colleges and universities that our students have mastered the reading, writing, and math skills required for success.

Providing Districts and Educators with the Flexibility to Meet Students Needs

While these graduation requirements define at a minimum of what students should know -- the how, when, and even where students are taught are up to each district, student and parent. This provides educators with the maximum flexibility needed to customize the learning and supports necessary to meet individual student needs. To make learning more relevant to many students, the districts were given the authority to integrate some or all of the requirements into a myriad of programs, subjects, curriculum and schedules. For example, the skills and knowledge students are required to learn can be incorporated into:

- Career and Technical Education (CTE) programs.
- Work-based learning programs.
- Integrated sequences such as humanities (e.g., combining English, social studies, and art.)
- Integrated math and science classes.
- Project-based learning.
- Online learning.
- Dual Enrollment.
- Advanced Placement Courses.
- International Baccalaureate or other "early college" experiences or programs.

Students may also earn credit if they successfully demonstrate mastery of subject area content expectations or guidelines for the credit through options like testing out, on-traditional course work and independent teacher-guided study.

While considerable flexibility has been given to districts and schools to meet individual student needs, the degree and interest in utilizing the numerous options available has varied widely. For example, some districts have fully integrated the state high school graduation requirements into Career and Technical Education or work-based learning programs; others may have focused on online learning opportunities or opportunities for students to obtain college credits through Dual Enrollment, Advanced Placement and other programs.

Why ALL Students Benefit from the MMC

- The research is clear—all students do better when given the opportunity to learn in a challenging curriculum.
- Students are more likely to pass high-level courses than low-level courses. Thus, the research suggests that increasing access by all students to advanced academic course work will improve student academic achievement.
- Those who enter high school with test scores in the lowest quartile learn more in academically rigorous courses than they do in low-level courses.
- Moreover, students enrolled in lower-level courses were more likely to earn a "D" or "F" in Low-level courses despite their level of ability.
- Students attending schools with highly integrated rigorous academic and CTE programs have significantly higher student achievement in reading, mathematics and science than do students at schools with less integrated programs, as reported by the Southern Regional Education Board.
- CTE students enter postsecondary education at approximately the same rate as all high school graduates. The National Center for Education Statistics (NCES) in 2000 found that CTE students were more likely than their general peers to obtain a degree or certificate within two years, despite the fact that CTE students were more likely to be employed while in school.
- The Class of 2011 Graduation and Dropout Rates were recently released by Center for Educational Performance and Information (CEPI).
    - When this legislation was originally passed, opponents argued that the dropout rate would skyrocket and the graduation rate would drop by as much as 30 percent. THIS HAS NOT HAPPENED.
    - Dropout rates were unaffected.
    - While, four year graduation rates dipped slightly, students are remaining in school and many are attending five-year programs that yield both a diploma AND college credits.
- Preparing ALL Students
    - Levels the playing field for all students.
    - Maximizes state assessment scores.
    - Reduces Dropout rates.
    - Enhances apprenticeship and job-training options.
    - Improves college scholarship and entrance opportunities.
    - Increases career choice, opportunities and earning potential and tax revenue.
    - Encourages economic development and job retention and expansion in Michigan.
    - Increases civic participation.
    - Reduces crime and incarceration rates and costs.

Good Jobs and Good Pay Demand More Education

According to a wide range of economic, education and business experts, good jobs require more math and English than ever before, and workers will need some postsecondary education or training—whether it is in the form of two-or four-year college course work, apprenticeships, or the military—to meet the needs of the high performance workplace.

If U.S. workers cannot meet the demand, many of the highly skilled jobs may go to workers in other countries, such as China and India, which will have a significant impact on U.S. competitiveness in the global economy.

The opportunity for employment and to earn a living wage continues to decline.

- Bureau of Labor Statistics projections show that 80% of the top 50 fastest-growing jobs will require education beyond high school, and that 40% of all new jobs will require at least an associate's degree.
- Two-thirds of all new jobs will require some postsecondary education.
- The average wages of high school graduates, and those individuals who never graduated high school, have fallen over the last two decades, while the average incomes of those who went beyond high school have risen.

Each year, K-12 education in Michigan is funded through a combination of local, state and federal dollars totaling over $22 billion per year. While funding levels vary from year to year, federal funds account for nearly $3 billion per year and come from numerous funding streams with various requirements.

Meeting Federal Education Requirements

Changes to graduation requirements which would not hold all students to the same standards, with the exception of certain students with disabilities, would place this federal funding in jeopardy. For example:

- To obtain federal CTE funds, students are required to meet the same challenging academic standards, whether the program is for a trade certification or a 2-year degree or a 4-year degree. In other words, reducing graduation requirements for CTE students would not meet federal requirements and would place CTE funding at-risk.
- Each year, Michigan schools receive over $600 million in Federal Title I funding to support at-risk student programs in Michigan. This funding requires the state to develop strategies to ensure that all students are taught the same knowledge and skills, and held to the same expectations for achievement.
- In addition, Michigan along with most other states adopted the Common Core State Standards that will prepare students to graduate high school, career and college ready, and, will be aligned to state assessments. Michigan is also moving to new computer adaptive assessments which will be given to, and results compared with students from a majority of other states. If graduation requirements are reduced for all or some students, our current or future assessments will not be aligned and our students will be placed at a distinct competitive disadvantage. This could jeopardize pending federal approval of our new assessment system and jeopardize $600 M to districts in Title I funding.

Increasing World Language Requirements Prepare Students for Global Workplace

- Students, who learn a second language, benefit in practical ways. They are better able to communicate with native speakers in this country and in other nations, have a better understanding of other cultures and are better prepared for potential careers.
- Students who study two years of a language other than English score significantly higher on the SAT verbal and math test than students who do not complete two years of a language.
- Higher wages are also linked to students who study a language other than English for two years. In

Student Readiness

Approximately 1 in 5 students are ready to enter college or the workplace. Less than 30% of ACT-tested students met or exceeded all three ACT College Readiness Benchmarks—these students likely entered high school with the requisite foundational skills, took rigorous courses, worked hard in those courses, and are now ready to enter college and the workplace.

Improving college readiness is crucial to the development of a diverse and talented labor force that is able to maintain and increase U.S. economic competitiveness throughout the world.

- Employers report that a majority of high school graduates are inadequately prepared to succeed in an increasingly competitive economy. For example, more than 60% of employers report that recent graduates have poor math skills, while nearly 75% pointed to a deficiency in grammar and writing skills.
- These high school graduates are likely to become trapped in unskilled, low-paying jobs that do not support a family well above the poverty level, provide benefits or offer a clear pathway for advancement.
- Employers estimate that 39% of recent high school graduates, with no further education, are unprepared for the expectations that they face in entry-level jobs. 45 percent are not adequately prepared for the skills and abilities they need to advance beyond entry level.
- In a recent survey, 40 percent of high school graduates said they were not adequately prepared for employment or postsecondary education, and that if they could repeat their high school experience, they would work harder, especially in math, science and English.
- Nearly 30% of college freshmen are immediately placed into remedial courses that cover material they should have learned in high school.
- Students who require remediation are generally less successful in college and are less likely to earn degrees than their peers who do not require remediation. 76 percent of college students requiring remedial reading, and 63% requiring remedial math, do not earn either an associate's or a bachelor's degree.
- Over the course of their college careers, more than 40% of postsecondary students will take at least one remedial course.

Common Uses of Algebra II in Everyday Life and Work

Algebra II concepts and skills provide invaluable tools for developing family budgets, preparing tax returns, solving every day home improvement and financial challenges and navigating the world of business. Below are a few examples.

Credit

- Evaluating credit card offers, the impact of interest rates if making only minimum payment, credit card limits.
- Determining how credit card ratings are figured, effects of various actions on credit ratings, what is a good or bad score.
- Establishing the impact of a credit card score on house or car financing.

Budget

- Analyzing, developing and implementing household or professional budgets.

Mortgages

- Analyzing various types of mortgages, financial impact of down payments or interest rates or on mortgage payments.
- Determining the benefits of early payments on a mortgage balance.

Health

- Evaluating the benefits and risks of various weight loss options including: diet plans, prescription medications, medical procedures, etc.
- Determining medical needs and comparing insurance plans, benefits and costs.

College and Retirement Savings and Investments

- Calculating compounded interest on a savings account.
- Analyzing various college savings and investment instruments and strategies to meet family needs.
- Assessing college loan options, costs and repayment options.
- Determining when to retire and collect social security.
- Evaluating the type of savings or investments and the financial amount necessary to meet retirement needs.

Auto

- Analyzing buying or leasing options, the impact of interest rates and total operating costs on various vehicles.
- Evaluating automobile insurance plans, options, liability and deductibles.

Tax Returns

- Preparing tax returns, calculating capital gains, depreciation, etc.

Career Decisions

- Analyzing what career best meets your short-term and long-term goals and needs.
- Evaluating job offers, opportunities for advancement, salary, health care, etc.

Energy Savings

- Figuring and comparing energy savings for various appliances.

- Gasoline savings on various model automobiles.
- Payback time for adding additional insulation to a home.

Civic Responsibility

- Analyzing numerous pieces of information to make voting decisions.
- Evaluating the cost implications of ballot proposals.
- Understanding the mathematics of how votes are counted in a state and federal election.

Public Opinion

- Recognizing the characteristics of a well-designed study or argument.
- Recognizing bias methods of data collecting.
- Recognizing reliability of conclusions made from studies/reports.
- Recognizing bias in questions asked in surveys.
- Recognizing the bias of data collected in surveys.

Algebra II Common Uses in Various Industries

Agriculture, Food & Natural Resources -- Skills gained in Algebra II are used to:

- Develop feed rations to maximize feed efficiency and minimize cost of production.
- Make animal purchase decisions (what to buy, how much to spend) based on genetic potential to improve production of meat, milk, eggs, etc.
- Make decisions as to types of energy resources (i.e. wind, methane or natural gas, etc.).
- Understand ratios of fertilizer needed based on soil analysis.
- Rotate crops in fields based on productivity levels / climate.
- Operate highly technical equipment / computerized systems to gain efficiency in planting, fertilizing.
- Understand chemical mixtures to become certified to apply pesticides, herbicides, and fertilizer.
- Determine DNR deer hunting policy for the upcoming hunting season based on deer population studies.
- Make decisions about fish habitat and sustainability of desirable fish populations based on fish studies which identify which species of fish inhabit a lake.
- Interpret weather and water temperature maps to determine where commercial fisherman and charter boats should fish.
- Determine the optimal meal price to maximize revenue without impacting sales.

Hospitality and Tourism -- Skills gained in Algebra II are used to:

- Understand historical mathematical trends in order to predict future events and budgeting.
- Analyze sporting events.

Architecture & Construction -- Skills gained in Algebra II are used to:

- Design and plan houses using computerized systems.
- Verify that a structure was built to specific measurements.
- Cut materials for and installation of curved walls in modern offices buildings.
- Calculate weight bearing capabilities – prevent foundation from shifting later
- Minimize waste of materials and maximizing profit.

Manufacturing -- Skills gained in Algebra II are used in:

- Production
- Maintenance, Installation & Repair
- Quality Assurance
- Logistics & Inventory Control
- Health, Safety and Environment Assurance